March 16, 1995

Office of the Secretary
Federal Communications Commission
Washington, DC 20554

RE: ET Docket No. 94-32

Gentlemen:

Enclosed are an original and 9 copies of comments on the Second Notice of Proposed Rule Making.

As usual, your attention and consideration in this matter is greatly appreciated by ALL Amateur Radio Operators.

Sincerely,

James S. Kaplan
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JK/jk
Enclosure(s)

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Allocation of Spectrum Below	)	ET Docket No. 94-32
5 Ghz Transferred From	)	
Federal Government Use	)	

To: The Commission

COMMENTS OF JAMES S. KAPLAN
RESPONSE TO SECOND NOTICE OF PROPOSED RULE MAKING (Document #95-47)

James S. Kaplan, an interested party, duly authorized by Section 1.415 of the Commission's rules, hereby respectfully submits comments in the above named matter.

I. DISCUSSION

1. Those affected by the Commission's proposal to adopt allocations and rules for in the 2390 - 2400 MHz and 2402 - 2417 MHz segments transferred from Federal Government use will all benefit from the following, allowing some sharing of this spectrum between stations in the Amateur Service , Amateur Satellite, unlicensed PCS and Part 15 devices. Among the numerous commenters and interested parties in this matter, only Amateurs and those representing Amateurs have a true personal interest in these proceedings that is not based on economics. Keeping this in mind, this commenter begs the Commission to exercise common sense and thoroughly contemplate the possible affects of discarding technical standards in favor of the desires of the commercial interests. Since the commercial interests are only interested in their profit, not any technical areas that are beyond their products end users abilities to understand, let them work within the constraints of technical standards which most benefit and protect the Amateur Radio Service. Modern design and manufacturing techniques allow more flexibility in system operations than before, making it feasible for commercial equipment that will operate satisfactorily for the end user while allowing protection to operations by Amateurs and Amateur Satellites. The rules regarding unlicensed PCS operations in this band should be of primary concern and focused towards current, future and continued use of the band by the Amateur Radio Service. If those devices are to be accountable to PCS rules, not only Part 15 rules, what guarantee do Amateurs have that interference issues may be reasonably resolved? None without Amateur intervention. Assuming these users are low-powered (i.e. < 1 Watt ERP) using omnidirectional antennas and some form of spread spectrum or other (very) Wideband emission, their potential for interference with Amateur point-to-point links and Wideband (i.e. ATV, high rate data, etc..) systems will be relatively low. On the other hand, if any narrowband (FM, AM, SSB) emission is used and/or directional antennas are allowed, even with reduced ERP, that interference potential will be real and constant.

2. While initially discussing and identifying Amateur Satellite operations in the 2400 - 2402 MHz segments in earlier documents, the interested parties, for the most part, have ignored their existence and need for protection from terrestrial interference in the Second Notice of Proposed Rulemaking. Paramount to the success of and the future of Amateur Radio is the acknowledgment and protection of Amateur Satellite operations, particularly those in the 2400 - 2410 MHz and 2430 - 2438 MHz segments. 2300 - 2450 MHz is allocated to the Amateur service WORLDWIDE by the ITU. The US 13cm allocation is the

Worldwide basis for Amateur satellite operations in this band. The maintenance of the US 13cm allocation is critical to remaining compatible with the rest of the world's 13cm Amateur allocations. Domestically 2390 - 2400 MHz is used by Amateurs for Video, Data and Voice. 2400 - 2410 MHz and 2430 - 2438 MHz are used exclusively by satellite operations by Amateurs. Disruption of the 2400 - 2410 MHz segment would be detrimental to current Amateur satellite operations. 2400 - 2410 MHz should be reallocated to the Amateur Satellite service on an exclusive, primary basis to protect those satellites currently in orbit and to further foster growth in the Amateur Satellite services.
This commenter proposes to identify and afford protection to the Amateur Satellite operations in the 2400 - 2410 MHz and 2430 - 2438 MHz segments, in the form of strict non-interference to Amateur Satellite operations in the Space-to-Earth direction at 2400 - 2410 MHz and co-primary status for all users of 2430 - 2438 MHz if necessary.

3. (Ref. Para. 55, Doc. 95-47) Combined use of 2390-2400 MHz and 2402-2417 MHz should not be allowed by PCS or other Part 15 devices. There should be a guard band at least from 2399 - 2411 MHz (whether the proposed allocation of 2390 - 2400 MHz and 2400 - 2483.5 MHz as worded here is a misprint or an misguided attempt to gain more spectrum for the other services is unclear) to protect Amateur Satellite operations from interference from these devices. If Amateurs can work around non-contiguous band segments the manufacturers of these devices certainly can as well. The potential for device manufacturers and marketers to misrepresent and promote misuse of their products capabilities may be kept in check in part by a non-contiguous allocation. It is also not recommended to allow the same radiated power levels in these band segments as in 1890 - 1930 MHz. The differentiation between unlicensed PCS operating in the Part 15 segments and PCS operating elsewhere is their low power and limited areas of use. The devices must also share the band segments with other Part 15 devices and Amateur operations, therefore it is only reasonable and logical that PCS be restricted to the same or more stringent technical requirements of other Part 15 devices. No special accommodation for them should be made as they are already allowed 40 MHz of spectrum with which to operate at higher power levels. It is paramount to protect Amateur Satellite operations in the 2400 - 2410 MHz and 2430 - 2438 MHz segments. It is hoped that the Commission has not overlooked the importance, both technical and historical, of a primary Amateur Satellite allocation (such as those found in the 144 - 146 MHz band and elsewhere in our allocations). The Commission need not be reminded that by international treaty Amateur Satellite allocations are internationally allocated and protected from interference (in most bands) from

other services. It is hoped there is reasonable precedence for a non-shared allocation with Amateur Satellite emphasis at 2400 - 2410 MHz (Space-to-Earth) paired with 2430 - 2438 MHz (Earth-to-Space)[1].

4. (Ref. Para. 56, Doc. 95-47) NRC (or others) declined to specifically identify Amateur use in these segments as an interference potential, therefore rules prohibiting airborne or Space-to-Earth operation must specifically exclude Amateur operations. Amateurs Satellite enthusiasts are known to primarily use narrow beamwidth directional antennas with elevation adjustment and have a faily low duty cycle making them of little threat to ongoing space research. In addition, Amateur Space-to-Earth and airborne operations have not specifically identified as potential interferers. Since Amateur Satellites are currently operating at 2400 - 2410 MHz in the Space-to-Earth direction and NRC has failed to identify these operations specifically, NRC should be afforded no protection. Limiting Amateur Satellite operations in this segment in the Space-to-Earth direction will seriously jeopardize the future of Amateur Satellite operations in this band as the 2430 - 2438 MHz segment would be unsuitable for Space-to-Earth operations due to terrestrial noise and interference from Part 15 and Part 18 (ISM) devices and microwave ovens, etc..

5. (Ref. Para. 57, Doc. 95-47) See paragraph 55 reply. PCS should be clearly and specifically prohibited from directional antennas, limited to the same radiated power levels as other Part 15 devices and especially from continuing operation when notified of interference to other Part 15 devices or Amateur operations. The only change to Part 15 should be maintaining the maximum radiated signal strengths as those found in §15.247 and §15.249 (October 1, 1993 release) and implementing an interference resolution program for non-Amateur to Amateur interference issues. Manufacturers of these devices should reasonably be able to construct their devices in such a manner as to allow their users the ability to quickly and easily change channels or operation modes or include circuitry to identify non-compatible operations on nearby channels and self-adjust accordingly to interference situations.

6. (Ref. Para. 58, Doc. 95-47) No changes to Part 15 should be made to further facilitate Part 15 devices. The rules are generally agreeable to most manufacturers and device users by their earlier comments and reply comments except those outlined above (transmitted power levels). If anything, Amateurs need stronger protection wording and perhaps Part 15 device manufacturers should be

[1] See 47 CFR §97.207(2)

compelled to label their products and instruction manuals in such a manner as to minimize unintentional interference to Amateur operations and to other Part 15 devices.

7. (Ref. Para. 59, Doc. 95-47) Again, NRC (or others) declined to specifically identify Amateur use in these segments as an interference potential, therefore rules prohibiting airborne or Space-to-Earth operation must specifically exclude Amateur operations. Amateurs Satellite enthusiasts are known to primarily use narrow beamwidth directional antennas with elevation adjustment and have a faily low duty cycle making them of little threat to ongoing space research. In addition, Amateur Space-to-Earth and airborne operations have not specifically identified as potential interferers. Since Amateur Satellites are currently operating at 2400 - 2410 MHz in the Space-to-Earth direction and NRC has failed to identify these operations specifically, NRC should be afforded no protection. Limiting Amateur Satellite operations in this segment in the Space-to-Earth direction will seriously jeopardize the future of Amateur Satellite operations in this band as the 2430 - 2438 MHz segment would be unsuitable for Space-to-Earth operations due to terrestrial noise and interference from Part 15 and Part 18 (ISM) devices and microwave ovens, etc..

8. The rules contained in Part 15, (§15.247 and §15.249, October 1, 1993 release) regarding maximum radiated signal strengths for devices operating in these segments allow for sufficient operation with the least probability for interference to Amateur operations. Part 15 Devices should not be allowed to operate with more than 50 millivolts per meter in the 2400 - 2410 MHz and 2433 - 2438 MHz segments and unlicensed PCS devices should not be allowed to operate in these segments period. Prohibiting PCS operation in these segments will effectively enhance the operation of Part 15 devices while providing a modicum of protection to Amateur Satellite operations (assuming the above signal level for Part 15 Devices is implemented in those segments). A plan implementing an interference resolution program for non-Amateur to Amateur interference issues using similar jargon found in Part 97[2], perhaps using the existing Official Observer Program and/or frequency coordination bodies for mitigating individual cases for both unlicensed PCS and Part 15 users would be beneficial as well. Realizing that the user of Part 15 or PCS devices cannot reasonably be expected to understand or affect these issues, the burden could easily be placed on BOTH the manufacturer (in the form of disclosure to the consumer) and Amateurs to resolve interference issues. While some protection is already afforded Amateurs in Part 15 and by our Primary

[2] See 47 CFR §97.205(c)

Status, an Amateur implemented plan would be helpful also. If nothing else, wording needs to be included in the new rules which further strengthens Amateur and Amateur Satellite Primary status over these devices in an interference situation. Perhaps Part 15 should be amended for other bands and segments affected by this rule change (902 - 928 MHz for example). Suggested wording may include; "Upon receiving notification of interference to a station or stations in the Amateur service (or any authorized radio service), the user shall immediately cease operations until such time as the interference has been resolved or eliminated". This wording should be printed clearly in the users manual for the equipment as well as on the device itself. Part 15(§15.5) already allows this condition when the notification comes from a Commission representative. Parts 15 and 97 should be amended to show wording such that an Amateur could deliver the notice or be the Commission's representative. The Part 15 labeling on the device and in the owners manual should ideally reflect the same and provide mailing address and telephone information to help the consumer with interference resolving.